Prognosis

Children's adverse reactions to subsequent peanut exposure were often more serious than symptoms experienced in initial reactions

Vander Leek TK, Liu AH, Stefanski K, et al. ***The natural history of peanut allergy in young children and its association with serum peanut-specific IgE.*** *J Pediatr 2000 Dec;**137**:749–55.*

QUESTION: In young children with peanut allergy, what is the nature and rate of adverse reactions caused by accidental peanut exposure?

Design
Prospective cohort study with a median of 5.9 years (range 1.4–22.4 y) of follow up.

Setting
Boulder, Colorado, USA.

Patients
102 children with clinical peanut hypersensitivity diagnosed before their fourth birthday. Children were included if they had a convincing history of clinical peanut hypersensitivity, a positive double blind, placebo controlled food challenge response to peanuts, or both; and a positive skin prick test response to peanuts. 83 children (81%) (median age 2.4 y, 69% boys) were included in the analysis.

Assessment of prognostic factors
Severity of symptoms (non-life threatening or potentially life threatening) and organ system involvement (skin, respiratory, gastrointestinal, or other) with symptoms experienced after accidental peanut exposure. Serum peanut specific immunoglobulin E (IgE) concentrations were measured in 51 of 83 (61%) children.

Main outcome measure
Subsequent adverse reactions after a first peanut exposure were assessed at least yearly.

Main results
50 children (60%) had a total of 115 adverse reactions caused by accidental peanut exposure during follow up (mean 0.33 adverse reactions/y). During their first reaction, 12 children (14%) had skin symptoms alone after only skin contact with peanuts, 26 (31%) had skin symptoms alone after eating peanuts, and 45 (54%) had respiratory symptoms, gastrointestinal symptoms, skin symptoms, or all 3.

61 children (73%) had non-life threatening first reactions to accidental peanut exposure and 22 (27%) had potentially life threatening first reactions. Of those children with non-life threatening first reactions who had a subsequent reaction (n = 43), 19 children (44%) had ≥1 potentially life threatening reaction. Of those children with potentially life threatening first reactions who had a subsequent reaction (n = 17), 12 children (71%) had ≥1 potentially life threatening subsequent reaction. Overall, of the 60 children (72%) with ≥1 subsequent reaction, 31 (52%) had ≥1 potentially life threatening subsequent reaction.

Of the 51 children who had their serum peanut specific IgE concentrations measured, those who had skin symptoms alone (n = 11) had a lower median serum peanut specific IgE concentration than those who had respiratory symptoms, gastrointestinal symptoms, or both (n = 40) (1.25 *v* 11.65 kU_A/l, p = 0.004). However, no threshold level for serum peanut specific IgE existed below which only skin symptoms occurred.

Conclusion
Most young children with clinical peanut hypersensitivity continued to have adverse reactions to accidental peanut exposure; however, symptoms experienced during a subsequent adverse peanut reaction were not always consistent with those experienced during a first reaction.

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COMMENTARY
Food allergies among children are common and believed to be on the increase, particularly in Western countries. Unlike allergy to milk and egg products, peanut allergy tends to persist over time, with <20% of children outgrowing their allergy.[1] This longitudinal study by Vander Leek *et al* examines the nature of reactions after accidental peanut exposure in young children. The study confirms other work that suggests that those with mild initial allergic reactions to peanuts may develop subsequent life threatening episodes after accidental exposure or ingestion.[2]

The strengths of this study are the strict inclusion criteria and annual follow up for adverse reactions for up to 22 years (median 5.9 y). Although children with skin symptoms during initial reactions had lower peanut specific IgE concentrations than children with more severe initial reactions, no threshold was identified below which only skin symptoms occurred. However, serum peanut specific IgE concentrations were determined in only 61% of the participants.

The results are relevant to all healthcare professionals involved with the care of infants and children. Parents and healthcare professionals should be aware that if a child has a mild initial reaction to peanuts, after either skin contact or ingestion, that child is at risk of developing a more severe, potentially life threatening reaction should a subsequent accidental exposure occur.

Peanuts are widely distributed throughout our food supply, often in minute quantities, and thus avoidance of accidental exposure is difficult. Children who have had severe initial reactions to peanuts and asthmatic children with peanut allergy are currently advised to carry injectable epinephrine. However, current practice is likely to come under review given these recent findings. Indeed, it has been suggested that every child with peanut sensitivity should now carry self injectable epinephrine.[1]

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1 Sampson HA. What should we be doing for children with peanut allergy? *J Pediatr* 2000;**137**:741.
2 Hourihane JO, Dean TP, Warner JO. Peanut allergy in relation to heredity, maternal diet, and other atopic diseases: results of a questionnaire survey, skin prick testing, and food challenges. *BMJ* 1996;**313**:518–21.